

WHAT IS CLAIMED IS:

1. A color separating device configured to separate a light emitted from a light source into a plurality of monochromatic lights of different wavelengths, comprising:

a first reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged with respect to a rotary shaft in a circumferential direction at equal intervals and configured so as selectively to reflect or to transmit incident lights of the light from the light source;

a second reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged with respect to the rotary shaft in the circumferential direction at equal intervals and configured so as selectively to reflect or to transmit incident lights of the light from the light source which are not transmitted through the first reflective wheel unit, the plurality of color separating reflective wheels being at a predetermined distance from the first reflective wheel unit in an axial direction of the rotary shaft;

a third reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged with respect to the rotary shaft in the circumferential direction at equal intervals, facing the color separating reflective wheels of the first reflective wheel unit, and configured so as selectively to reflect or to transmit incident

lights of the light which is transmitted through the first reflective wheel unit, the plurality of color separating reflective wheels being at a predetermined distance from the second reflective wheel unit in the axial direction of the rotary shaft; and

a fourth reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged with respect to the rotary shaft in the circumferential direction at equal intervals, facing the color separating reflective wheels of the second reflective wheel unit, and configured so as selectively to reflect or to transmit incident lights of the light which is transmitted through the second reflective wheel unit, the plurality of color separating reflective wheels being at a predetermined distance from the third reflective wheel unit in the axial direction of the rotary shaft.

2. The color separating device of claim 1, wherein the color separating reflective wheels of the first to fourth reflective wheel units are arranged at a predetermined slope with respect to the rotary shaft.

3. The color separating device of claim 1, wherein the color separating reflective wheels of the first to fourth reflective wheel units are arranged with respect to the rotary shaft in the circumferential direction at intervals of 60°.

4. An image projecting apparatus having a color separating device configured to separate a light emitted from a light source into a plurality of monochromatic lights of different wavelengths, and a panel unit configured to receive an input of the monochromatic lights reflected from the color separating device so as to form on the panel unit corresponding monochromatic color stripes, the color separating device comprising:

a first reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged with respect to a rotary shaft in a circumferential direction at equal intervals and configured so as selectively to reflect or to transmit incident lights of the light from the light source;

a second reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged with respect to the rotary shaft in a circumferential direction at equal intervals and configured so as selectively to reflect or to transmit incident lights of the light from the light source which are not transmitted through the first reflective wheel unit, the plurality of color separating reflective wheels being at a predetermined distance from the first reflective wheel unit in an axial direction of the rotary shaft;

a third reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged

in the circumferential direction of the rotary shaft at equal intervals, facing the plurality of color separating reflective wheels of the first reflective wheel unit, and configured so as selectively to reflect or to transmit incident lights of the light which is transmitted through the first reflective wheel unit, the plurality of color separating reflective wheels being at a predetermined distance from the second reflective wheel unit in the axial direction of the rotary shaft; and

a fourth reflective wheel unit comprising a plurality of color separating reflective wheels, the plurality of color separating reflective wheels arranged in the circumferential direction of the rotary shaft at equal intervals, facing the plurality of color separating reflective wheels of the second reflective wheel unit, and configured so as selectively to reflect or to transmit incident lights of the light which is transmitted through the second reflective wheel unit, the plurality of color separating reflective wheels being at a predetermined distance from the third reflective wheel unit in the axial direction of the rotary shaft.

5. The image projecting apparatus of claim 4, wherein the color separating reflective wheels of the first to fourth reflective wheel units are arranged at a predetermined slope with respect to the rotary shaft.

6. The image projecting apparatus of claim 4, wherein the color separating reflective wheels of the first to fourth reflective wheel units are

arranged with respect to the rotary shaft in the circumferential direction at intervals of 60°.

7. The image projecting apparatus of claim 4, further comprising a condenser lens for concentrating the light emitted from the light source onto the color separating reflective wheels of the color separating device.

8. The image projecting apparatus of claim 4, further comprising:

a first collimating lens configured to direct monochromatic light of the plurality of monochromatic lights of different wavelengths reflected from the color separating reflective wheels of the color separating device so as to be incident on one of a plurality of square beam generating units;

the one of the plurality of square beam generating units configured to transform the monochromatic light of the plurality of monochromatic lights of different wavelengths from the first collimating lens into a square beam, and then to emit the square beam; and

a second collimating lens configured to direct the square beam from the one of the plurality of square beam generating units onto a corresponding position of the panel unit.

9. The image projecting apparatus of claim 4, further comprising a projecting lens configured to enlarge the monochromatic color stripes from the panel unit, and then to project the enlarged monochromatic color stripes onto a screen.